REMARKS

Status of the Claims

This application has been reviewed in light of the Office Action dated August 22, 2005. Claims 1-21 and 30-32 are presented for examination. Claims 1, 6, 7, and 31 have been amended to define more clearly what Applicants regard as their invention. Claim 32 has been added to provide Applicants with a more complete scope of protection. Claims 1, 31, and 32 are in independent form. Favorable reconsideration is requested.

Rejections Under 35 U.S.C. § 112

Claims 1-21, 30, and 31 were rejected under 35 U.S.C. § 112, second paragraph, as indefinite. In particular, the Examiner takes issue with the recitation that the estimate of tangential force is obtainable "without a measurement in the second tread element" and suggests that Claims 1 and 30 are inconsistent with Claim 6. Claims 1 and 31 have been amended to delete this phrase. It is therefore believed that this rejection has been obviated, and its withdrawal is therefore respectfully requested.

Rejections Under 35 U.S.C. § 102

Claims 1, 18-20, 30, and 31 were rejected under 35 U.S.C. § 102(b) as anticipated by DE 3939917 ("Winner"). Claims 1, 6, 18-21 and 30-31 were rejected as anticipated by DE 3937966 ("Breuer").

While anticipation is not an *ipsissimis verbis* test, it is well-established that "[a] claim is anticipated only if each and every element as set forth in the claim is found,

either expressly or inherently described, in a single prior art reference." M.P.E.P. § 2131 (quoting *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987))(emphasis added). Moreover, "[t]he identical invention must be shown in as complete detail as is contained in the ... claim." M.P.E.P. § 2131 (quoting *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)).

Winner, as discussed in previous Amendments, relates to a tire having numerous measurement knobs of varying inclination. To estimate tangential force on the vehicle, detections from a number of such knobs are considered in combination. By contrast, Claim 1 recites that "an estimate of a tangential force on the vehicle is obtainable based on the signal produced by a single one of the at least one first tread elements" (emphasis added). This feature is not taught or suggested by Winner.

Furthermore, in Winner, the sensing element in each knob element merely detects whether the corresponding knob is or is not slipping/sliding. An evaluation unit calculates the momentary friction between the tire and the rolling surface based on detections from multiple knobs. Winner does not teach or suggest a tread element having "a sensor capable of producing a signal representative of a level of tangential force in the contact surface of the first tread element," as recited in Claim 1.

Accordingly, Claim 1 is believed to be patentable over Winner.

Breuer, which is discussed in detail in the present application (see paragraphs 185-189), relates to a system for determining the conditions of dynamic engagement between a vehicle tire and a roadway. The tire includes a sensor within a tread block or rib of the tread. The sensor detects the local stresses in circumferential, transverse

and perpendicular directions as a point passes through the tire contact zone, as the tire rolls along the roadway.

Breuer does not teach or suggest that "an estimate of a tangential force on the vehicle is obtainable based on the signal produced by a single one of the at least one first tread elements," as recited in Claim 1. Nor does Breuer teach or suggest "at least within a range of rolling conditions to be monitored, the contact surface of the at least one first tread element slides relative to the ground during its passage through the contact area, while the at least one second tread element does not slide," as further recited in Claim 1.

With respect to Breuer, the Office Action states the following:

> The "first tread element" (the tread lug having the sensor) inherently slips "as least within a range of rolling conditions to be monitored" (emphasis added). The "second tread element" (the tread lug not having the sensor) inherently does not slip/slips insufficiently "at least within a range of rolling conditions to be monitored" (emphasis added). Claims 1 and 31 fail to require the slipping and not slipping to occur under the same range of rolling conditions.

(Office Action at page 9). Claim 1 has been amended to clarify that the first and second tread elements are considered under the same set of rolling conditions, thereby obviating this grounds of rejection.

Accordingly, Claim 1 is believed to be patentable over Breuer.

Rejections Under 35 U.S.C. § 103

Claims 1-6, 18-21, 30, and 31 were rejected under 35 U.S.C. § 103(a) as obvious over Breuer in view of U.S. Patent No. 4,319,620 ("Knill") and U.S. Patent No. 5,445,201 ("Kukimoto").

Knill relates to a tire tread design aimed at improving rolling resistance, tread wear and traction, or wet skid resistance (see, *e.g.*, column 3, lines 1-3). While Knill discusses using different compositions for various portions of the tread, nothing has been found or pointed out that teaches or suggests a tread design in which "at least within a range of rolling conditions to be monitored, the contact surface of the at least one first tread element slides relative to the ground during its passage through the contact area, while the at least one second tread element does not slide," as recited in Claim 1.

As discussed above, Breuer also does not teach or suggest this feature. Thus, Knill does not remedy the shortcomings of Breuer, discussed above, with respect to the features recited in Claim 1.

Kukimoto relates to tread designs that seek to reduce uneven wear by employing different compositions in different portions of the tread. Again, nothing has been found or pointed out that teaches or suggests a tread design in which "at least within a range of rolling conditions to be monitored, the contact surface of the at least one first tread element slides relative to the ground during its passage through the contact area, while the at least one second tread element does not slide," as recited in Claim 1. Thus, Kukimoto does not remedy the shortcomings of Breuer and Knill, discussed above, with respect to the features recited in Claim 1.

The Examiner contends that one of ordinary skill would have been motivated to combine Breuer, Knill, and Kukimoto in view of:

> (1) Breuer et al's suggestion to locate at least one sensor in a tread such that it is embedded in a tread element (e.g. tread lug) and (2) (a) Knill's suggestion to reduce rolling resistance while also providing adequate tread wear and traction (wet skid resistance) by using different compositions

> for the tread elements of the central portion and outer portions of the tread and/or (b) Kukimoto et al's suggestion improve wear resistance by using different elements in a tread.

(Office Action at pages 9-10). However, these rationales are merely the supposed advantages of each of these references individually. Nothing in Breuer suggests the desirability of tread configurations such as those discussed in Knill or Kukimoto. Likewise, nothing in Knill or Kukimoto suggests the desirability of the sensors described in Breuer. Thus, nothing has been found in these references, or elsewhere in the prior art, that would suggest combining these references. Of course, "[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." M.P.E.P. § 2143.01 (citing *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990))(emphasis in original).

Claims 7-17 have been rejected under 35 U.S.C. § 103(a) as being obvious over Brazil 200002924 ("Travert") in view of JP 62-6802 ("Japan '802"), U.S. Patent No. 2,152,883 ("Eudy"), JP 6-171321 ("Japan '321"), JP 61-263807 ("Japan '807"), Japan 918 (JP 8-118918), or JP 8-118918 ("Japan '918").

Claim 7, which depends from Claim 1, recites a tire in which the first tread element, viewed at the surface of the tread, has a central zone surrounded by an encircling zone, the sensor being disposed so as to achieve a measurement in the central zone and being sensitive to at least one tangential force exerted at the surface of the central zone.

As acknowledged in the Office Action, Travert does not teach or suggest providing the first tread element as a central zone surrounded by an encircling zone, as recited in Claim 7.

The Examiner cites a number of references that purportedly show tread elements having a central zone surrounded by an encircling zone. Japan '802 shows a tread having small, concave zones, partitioned by narrow sipes, in order to improve traction. Eudy shows a tread having circular slits defining a central zone, again in order to improve traction and reduce skidding. Japan '321 shows a tread having sipes that define central zones in order to improve performance on ice and snow. Japan '807 seeks to improve performance on ice and snow by providing tread blocks having a central area with a different chemical composition. Finally, Japan '918 shows a tread block pattern with a plurality of holes in a central area, in order to prevent uneven wear, without degrading the original tire performance characteristics, such as traction.

While these five references show tread patterns with central zones that can be distinguished from surrounding zones, it is respectfully submitted that there is no suggestion in Travert, or elsewhere in the prior art, that would have motivated a person of ordinary skill in the art to combine that disclosure with any of the five references discussed above or *vice versa*. The Examiner contends that one of ordinary skill would have been motivated to combine Travert with one of the five tread pattern references in view of:

> (1) [Travert's] teaching that the tire should grip the road, (2) [Travert's] teaching to embed the sensor in a tread element and (3) Japan '802, Eudy, Japan '321, Japan '807, or Japan '918's teaching to form a tread element in a tread such that it has an encircling zone and central zone . . .

(Office Action at page 5).

First, while it is axiomatic that a tire should grip the road, Travert's tire already has a tread pattern designed for this purpose. Even assuming, *arguendo*, that one would have been motivated to attempt to improve Travert's grip or wear characteristics,

this desire would have led one to replace the portions of Travert's tread pattern that are designed to grip the road, rather than the Travert's sacrificed rib/sensor, which is designed not to grip the road. Second, Travert teaches that it is desirable to position the sensor in a sacrificed rib – that reference does not provide a general teaching "to embed the sensor in a tread element," as the Examiner has stated. Third, the supposed teaching in the other five cited references to form a tread element having a central zone with a encircling zone does not relate in any way to making road grip measurements and therefore would not have led one to turn Travert.

Finally, Applicants note that "[t]he initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done." M.P.E.P. § 2142. However, nothing in the cited art evinces an appreciation of the desirability of using a central zone with a surrounding encircling zone as a measurement element, in the manner claimed. The advantages of such an arrangement are discussed, for example, at paragraph 73 of the specification:

> The relief of stress provided by the thin recess strip 13 makes it possible to carry out the measurement envisaged in a very acceptable manner. It is thought that this is because the central zone 10 offers less resistance to a force directed perpendicular to the surface of the tread than the resistance offered by the encircling zone to a force directed perpendicular to the surface of the tread. This makes it possible to prevent the occurrence of ground contact pressures which are too high to permit sliding of the central zone.

The idea that the central zone is particularly suitable for making grip measurements, because it offers less resistance to forces perpendicular to the surface of the tread than the encircling zone, simply is not recognized in the prior art. Indeed, the tread

pattern references cited by the Examiner are all concerned with ensuring increased resistance to perpendicular forces in the central zone, in order to improve grip and wear characteristics. Thus, these references, when considered as a whole as the law requires, teach away from the combination hypothesized by the Examiner. See, M.P.E.P. § 2141.02.

For at least the above reasons, it is submitted that *prima facie* obviousness has not been established with respect to Claims 7-17 and withdrawal of these rejections is therefore respectfully requested.

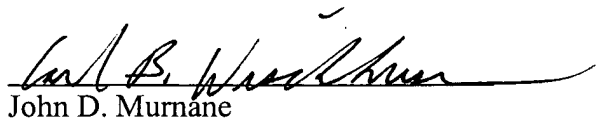
Independent Claims 31 and 32 recite features similar to those discussed above with respect to Claim 1 and therefore are also believed to be patentable over the cited art for the reasons discussed above.

The other claims in this application depend from independent Claim 1, discussed above, and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,



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